Nesting of Smoky-fronted Tody-Flycatcher *Poecilotriccus fumifrons* in French Guiana

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Summary.—Until now, the nests of only six of the 12 species of tody-flycatchers of the genus *Poecilotriccus* have been described. We present general information on the breeding biology of Smoky-fronted Tody-Flycatcher *Poecilotriccus fumifrons* in French Guiana. Nests we found were similar to those of other *Poecilotriccus* species for which the nest is known, i.e. closed/ovoid/pensile.

The genus *Poecilotriccus* comprises 12 species of small, stout-bodied flycatchers (Remsen *et al.* 2014). They generally occur in dense shrubbery at edges of primary forest and second growth, and in patches of low bushes in savanna, where they forage inconspicuously. The natural history of all *Poecilotriccus* is poorly known (Walther 2004, Kirwan 2010). To date, the nests of six species are described: Rufous-crowned *P. ruficeps* (Greeney *et al.* 2005), Black-and-white *P. capitalis* (Kirwan 2011), Ochre-faced *P. plumbeiceps* (de la Peña 1988), Rusty-fronted *P. latirostris* (Greeney 2014), Slate-headed *P. sylvia* (Skutch 1960, Walther 2004) and, most recently, Smoky-fronted Tody-Flycatcher *P. fumifrons* (Penard & Penard 1910, Bichinski 2015).

In French Guiana, Smoky-fronted Tody-Flycatcher is fairly common in appropriate habitats, mainly brushy vegetation or low second growth in man-altered habitats. However, its elusive behaviour and discreet movements in dense vegetation make it difficult to observe. Consequently, until recently, the species went unnoticed or misidentified by most French Guianan birders unfamiliar with its vocalisations, a situation exacerbated by its absence from popular field guides of the era, e.g. Meyer de Schauensee & Phelps (1978). The first record of nesting in French Guiana was mentioned by Tostain *et al.* (1992): on 11 April 1980, a pair was building a nest in an abandoned clearing near marshy forest at Saint-Georges-de-l'Oyapock (*c.*03°53'N, 51°48'W).

We present general information on the nesting of Smoky-fronted Tody-Flycatcher in French Guiana, describing ten nest sites and nests, and the structure of one nest in detail. We also report the observation of a pair accompanied by a fledgling.

Methods

The discovery of Smoky-fronted Tody-Flycatcher nests was entirely fortuitous, all being found during regular birdwatching trips or in the vicinity of observers' houses. Most observations were made after hearing the typical vocalisations and by following the birds. Nesting was revealed by the birds' behaviour: regular activity at one point, alarm calls, carrying of nest material or food. Nests were discovered by carefully watching the birds' movements through the vegetation. Active nests were monitored by frequent visits to sites. Observations were made from a distance through binoculars or a telescope, to minimise disturbance.

Results

From 1 February to 25 March 1998, VR regularly observed a pair of Smoky-fronted Tody-Flycatchers with a fledgling at the entrance to Air Force Base 367 next to Félix Eboué international airport at Rochambeau (*c.*04°49′N, 52°22′W). The area consisted of humid wasteland at the edge of swampy forest and covered by tall grasses, large stands of *Heliconia psittacorum* and bushes, close to buildings. The adults, and fledgling, which regularly begged for food, were always seen in the same small brushy part of this wasteland.

From 1999 to 2002, a pair of tody-flycatchers repeatedly nested in low vegetation in the backyard of MC's house at PK 10 along the Route de Saint-Jean (*c.*05°25′N, 54°03′W) near Saint-Laurent-du-Maroni. In early February 2002, a first nest was lost due to unknown reasons. A second nest, constructed *c.*50 m from the previous one, was probably destroyed by Smooth-billed Anis *Crotophaga ani*. A third nest was constructed in the same area of the garden and on 4 March one bird was incubating. All nests were pensile pouch-like structures of dry vegetation, e.g. grasses and rootlets, attached to a twig or vine *c.*1.5 m above ground and isolated from surrounding vegetation.

On 28 January 2010, MC found another nest under construction (Fig. 1), in the garden of Moutouchi ecolodge on the Plateau des Mines (*c.*05°20′N, 54°04′W) near Saint-Jean. The nest was attached to a thin twig also *c.*1.5 m above ground at the edge of low vegetation between the park-like garden and surrounding primary forest.

In 2013–14, MF found four nests of the species in an abandoned *c.*2 ha-clearing at Vevoni (*c.*04°13′N, 52°16′W), 19 km south-west of Régina, on the left bank of the Approuage River, between the rapids of Saut Tourépé and Saut Mapaou. The clearing was covered by shrubby regrowth mainly of vines, and Mimosaceae and Melastomataceae bushes, no taller than 1.5 m, and forming a near-impenetrable thicket under some palm and mango trees. All four nests were sited within a radius of *c.*40 m. In April 2013, MF found an active nest attached to the branch of a Mimosaceae bush, *c.*1.3 m above ground (Fig. 2). In early May 2014, a pair with a juvenile was observed in the clearing. Also in May 2014, MF found a nest under construction attached to a branch of a Mimosaceae, *c.*1.7 m above ground (Fig. 3). It was later found empty, the contents probably predated. On 20 July 2014, MF found another active nest *c.*2 m above ground attached to a branch of a *Bougainvillea* bush (Nyctaginaceae). It measured *c.*20 cm top to bottom with a dangling tail *c.*15 cm long. All four nests were constructed in rather open areas at the edge of shrubbery, used by the adults to discreetly approach the nest. The three nests in 2014 were probably successive breeding attemps by the same pair (MF pers. obs.).

In early 2014, VP followed a nesting attempt of this tody-flycatcher at Tour de l'Île (04°48′N, 52°22′W), a savanna at Matoury near Cayenne. When found on 1 January, the adults had only just started to attach nest material to the supporting twig. On 5 January, the rough structure of the nest was evident. An adult was occasionally seen near the nest until 26 January and thereafter the adults regularly visited the nest, probably to feed the nestlings. Finally on 9 February, the empty nest was found on the ground.

The nest was sited at the edge of a bushy area of *c.*40 × 30 m between a garden and swampy secondary forest. A small channel, 1 m wide, separated the garden from the bushy area. Vegetation in the garden mainly consisted of tall grasses and shrubs, 2–5 m tall. The pensile, pouch-like nest was attached *c.*50 cm from the end of a 3 mm-thick twig of a *Chromolaena odorata* bush (Asteraceae), and *c.*1 m above the small channel. The nest measured *c.*25 cm top to bottom with a dangling tail of material measuring *c.*15 cm (Fig. 4). At the level of the chamber, the nest measured *c.*11 × 8 cm. It clearly comprised two parts, a densely woven inner and a more loosely woven outer part. The inner part mainly

Figure 1. Nest of Smoky-fronted Tody-Flycatcher *Poecilotriccus fumifrons* under construction, Moutouchi ecolodge, Plateau des Mines, Saint-Jean, French Guiana, January 2010; note the still 'unroofed' and unfinished entrance (Michel Clément)

Figure 2. Nest of Smoky-fronted Tody-Flycatcher *Poecilotriccus fumifrons*, Vevoni, Approuage River, French Guiana, April 2013 (Mathias Fernandez)

Figure 3. Nest of Smoky-fronted Tody-Flycatcher *Poecilotriccus fumifrons*, Vevoni, Approuage River, French Guiana, May 2014 (Mathias Fernandez)

Figure 4. Nest of Smoky-fronted Tody-Flycatcher *Poecilotriccus fumifrons*, Tour de l'Île, Matoury, French Guiana, January 2014 (© Antoine Baglan)

Figure 5. Nest of Smoky-fronted Tody-Flycatcher *Poecilotriccus fumifrons*, Piste de Saut Bief near Cacao, French Guiana, March 2014 (Geneviève Gazel)

comprised *c.*5 mm-broad strips of monocotyledon leaves, i.e. true grasses (Poaceae) or sedges (Cyperaceae), and a few leaves of dycotyledons. No rhizomes, moss or spider's web were used. The inside of the nest chamber, measuring *c.*6 cm high by *c.*4 cm diameter, was lined with fine strips of grass leaves. The walls of the nest were 1.5–2.5 cm thick. The roofed side entrance comprised a short, rather loosely woven entrance, *c.*3 cm long and *c.*2.5 cm in diameter. The outer part of the nest was a looser structure constructed of broader strips of monocotyledon leaves.

On 20 March 2014, GG discovered a nest of the species along the Piste de Saut Bief (*c.*04°34'N, 52°27'W), a dirt road traversing fallow fields and active plantations to the rapids on the Comté River near Cacao (Fig. 5). The nest was *c.*80 cm above ground in vegetation between the dirt road and an abandoned clearing with low brushy vegetation and a few small trees. It was attached to a Solanaceae vine growing on a bush. The nest was constructed entirely of blades and strips of blades of herbaceous plants. On 31 March, O. Tostain (*in litt.* 2014) found one bird incubating two eggs. In the nearby vegetation, another agitated adult uttered the typical alarm call, a low rattling *kerrr* trill, quickly repeated 5–6 times. In the morning, at noon and in late afternoon, most passing vehicles along the dirt road disturbed the incubating bird, which would leave the nest briefly, returning after a few minutes. On 3 April between 08.31 and 09.27 h, the pair was seen arriving at the nest four times, with an interval of only 1–2 minutes between both birds. While one adult was in the nest, the second arrived, put its head inside for a moment and then flew off. The other adult followed later. We presumed that the eggs had hatched and that the adults were feeding small chicks. On 8 April, the nest was found on the ground, empty and destroyed.

Discussion

The nests of Smoky-fronted Tody-Flycatchers conformed to the closed/ovoid/pensile type in the system for describing nests of Neotropical birds proposed by Simon & Pacheco (2005), i.e. a pensile, pear-shaped, pouch-like nest with a tail of dangling material of variable length, usually up to *c.*15 cm, with a more or less roofed side entrance. They were similar to the nests of the species described by Penard & Penard (1910) and by Bichinski (2015) and to the known nests of other *Poecilotriccus*, although those of Slate-headed Tody-Flycatcher *P. sylvia* appear to lack a well-defined 'tail' (Skutch 1960) and the nests of Rufous-crowned Tody-Flycatcher *P. ruficeps* are 'tailless' or have a poorly defined 'tail' (Greeney *et al.* 2005).

Nests of the six *Poecilotriccus* species under discussion were all suspended less than *c.*3 m above ground, mostly from the tip of a twig, vine, slender branch or bamboo stem, in a site where the nest is not touching the surrounding vegetation, e.g. at the edge of or even within large patches of bamboo (*P. ruficeps*, Greeney *et al.* 2005), in an old treefall gap (*P. capitalis*, Kirwan 2011), in small openings in the understorey of second growth (*P. latirostris*, Greeney 2014), and at the edge of vegetation along a dirt road or a forest edge (*P. fumifrons* this study, Bichinski 2015), although dense vegetation used by the adults to discreetly approach the nest, was always nearby. Swampy forest nearby was found at four of eight nest sites studied by us.

Strips of grass, bamboo leaves and sedges are the main nest materials used by *Poecilotriccus* species, sometimes combined with other vegetation, e.g. *P. plumbeiceps*: fine grass stems with plant fibres and rootlets (de la Peña 1988); *P. sylvia*: grasses with moss and plant fibres (Walther 2004); *P. ruficeps*: bamboo leaves (*Chuquea* sp.) with moss (Greeney *et al.* 2005); *P. capitalis*: living and dead leaf parts with fine strips of bark, dark rootlets and rhizomorphs (Kirwan 2011); *P. latirostris*: strips of grass leaves (*Gynerium* sp.) and pale grass fibres with rootlets (Greeney 2014); and *P. fumifrons*: strips of dry grass (Poaceae) and sedge leaves (Cyperaceae), bamboo leaves, and other dry plant material (this study,

Bichinski 2015). However, the use of spider's web to bind the material as described for some *Todirostrum* tody-flycatchers (Walther 2004) has not been observed among *Poecilotriccus* species.

The dimensions of the *P. fumifrons* nest found by Bichinski (2015) agree very well with that measured by VP, with total length: 46 cm / 40 cm, dangling 'tail': 19 cm / 15 cm, nest diameter: 9 cm / 9.5 cm, diameter nest chamber: 3.5 cm / 4 cm, depth nest chamber: 7 cm / 6 cm and diameter of entrance: 2.4 cm / 2.5 cm.

For only two *Poecilotriccus* do we have any information concerning breeding season. In Napo province, north-east Ecuador, Rufous-crowned Tody-Flycatcher *P. ruficeps* is thought to breed from at least April until November, i.e. the second half of the wet and the onset of the dry season. However, the species may breed there year-round (Greeney *et al.* 2005). In Brazil, at Itagibá, Bahia (14°17'S, 39°51'W), V. P. Teixeira (www.wikiaves.com.br/565797 and www.wikiaves.com.br/581553) photographed a *P. fumifrons* nest in February. Nest building started around 5 February and the nest was complete on 17 February. The nest at Fortaleza do Tabocão, Tocantins (09°03'S, 48°31'W), studied by Bichinski (2015) was active in March. Thus, both nests were active in the second half of the wet and the early dry season in east-central Brazil (CRU 2015). In the Guianas, *P. fumifrons* breeds during the short dry and long wet seasons, i.e. from February to September (Penard & Penard 1910).

For *Poecilotriccus*, incubation periods are unknown, but a nestling period of 18–21 days is reported for Slate-headed Tody-Flycatcher *P. sylvia*. The similar-sized Common *Todirostrum cinereum* and Spotted Tody-Flycatchers *T. maculatum*, which also construct pensile, pouch-like nests, have incubation and nestling periods of *c.*18 days each. Assuming the same periods for *Poecilotriccus*, we calculated that construction of the eight nests of *P. fumifrons* in French Guiana started in December (n = 1), January (n = 1), February (n = 2), March (n = 2), April (n = 1) and June (n = 1). Therefore, we estimate breeding to occur from December through July, or throughout the wet season in French Guiana (Météo France 2014). When raining, the pear-shaped nest shape with broader strips of grass, sedge or bamboo leaves on the outside and the 'tail' of dangling nest material helps to shed rainwater, preventing the inside of the nest from becoming wet. Fig. 3 illustrates the raindrops on the nest material hanging below the nest.

Our observations also illustrate the high rate of nest failure for Neotropical passerines. At least three of five nests for which the outcome is known failed. Two were destroyed by predators. At one location, the same pair engaged in three successive breeding attempts within one month. Bichinski (2015) described predation of *P. fumifrons* nestlings by bullet ants *Paraponera clavata*. That bird nests in tropical environments suffer a high predation rate is well known (Skutch 1985). The pouch shape and suspended situation of nests of tody-flycatchers are presumed to reduce the risk of predation (Brosset 1974). Nests of *Todirostrum* tody-flycatchers are often constructed near active nests of paper wasps (Vespidae) (Walther 2004), probably as an anti-predator strategy. We did not notice an association with wasps at any of the nests of *P. fumifrons* we observed.

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